

# PATENT COOPERATION TREATY

## PCT



### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 17 MAR 2005

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Applicant's or agent's file reference AL 0357 PCT/Ha/H	<b>FOR FURTHER ACTION</b>		See Form PCT/PEA/416
International application No. PCT/EP2004/003625	International filing date (day/month/year) 31.03.2004	Priority date (day/month/year) 31.03.2003	
International Patent Classification (IPC) or national classification and IPC C25C3/18, C25C3/06			
Applicant CORUS TECHNOLOGY BV et al.			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand  22.09.2004		Date of completion of this report  16.03.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer  Hammerstein, G Telephone No. +49 89 2399-8175 	

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/003625

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**Box No. I Basis of the report**

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1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

**Description, Pages**

1-13 as originally filed

**Claims, Numbers**

1-10 as originally filed

**Drawings, Sheets**

1/4-4/4 as originally filed

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing *(specify)*:
- ☐ any table(s) related to sequence listing *(specify)*:

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing *(specify)*:
- ☐ any table(s) related to sequence listing *(specify)*:

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	5
	No: Claims	1-4,6-10
Inventive step (IS)	Yes: Claims	
	No: Claims	1-10
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations (Rule 70.7):

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Clarity, Article 6 PCT**

Claim 1 does not meet the requirements of Article 6 PCT in that the matter for which protection is sought is not clearly defined. The claim attempts to define the subject-matter in terms of the result to be achieved, namely an improvement of electrical conductivity of the molten salt bath, which merely amounts to a statement of the underlying problem, without providing the technical features necessary for achieving this result.

Claim 6 is unclear because the measures defined in claim 1 by a result to be achieved are further characterized by unclear features. The feature "enhancing the effective area of an anode ... by reducing the amount and/or size of gas bubbles" is also defined by a result to be achieved without providing the technical features how to achieve a reduction of gas bubbles.

The applicant's attention is drawn to the fact that novelty and inventive step cannot be based on unclear features. Thus, for purposes of sections "Novelty" and "Inventive Step" below the unclear features have not been taken into consideration.

**2. Cited documents**

- D1: US-A-4 464 234 (MINH NGUYEN Q ET AL) 7 August 1984 (1984-08-07)
- D2: DE 34 12 114 A (BBC BROWN BOVERI & CIE) 10 October 1985 (1985-10-10)
- D3: GB 484 014 A (DANIEL GARDNER) 29 April 1938 (1938-04-29)

Reference is particularly made to those passages of the documents indicated in the search report.

**3. Novelty, Article 33 (2) PCT**

D1 discloses a process for the electrolysis of aluminium sulfide at a temperature of about 750 °C, the bath comprising aluminium chloride as an additive in order to increase current density, and further additives of sodium chloride or potassium chloride. Formation of chlorine gas at the anode is avoided.  
Claims 1,2,6,7,9 and 10 therefore lack novelty.

D2 suggests a process for the electrolysis of aluminium sulfide in molten polysulfide, the bath having additives in order to afford operation at about 700 °C so that conductivity of the bath is high.  
Thus, claims 1,2,6,8,9 and 10 are not new.

D3 is directed towards a process of electrolyzing aluminium sulfide in cryolite, comprising additional sodium fluoride and potassium fluoride.  
Claims 1-4, 6 and 8 are therefore not new.

**4. Inventivity, Article 33 (3) PCT**

Claim 5 is not inventive in view of D3 because a suitable concentration of cryolite can be determined by routine tests.

The combination of a bath of aluminium sulfied in molten chloride salt, comprising a fluoride as an additive in order to improve current density is not suggested by the prior art documents. It would therefore appear that an independent claim restricted to this combination of features is new and inventive.